hot forming bar-shaped input stock of rhomboidal cross-section, said cross-section of said input stock being adapted to the given cross-section of the blade footing, and being larger than said cross-section of the blade footing by a minimum machining allowance only;

cutting a blank from the input stock having a length corresponding to the length of the blade;

machining said blank to form the blade.

REMARKS

The claims have been amended to improve the style of this application.

Claims 5 - 7 have been rejected as being unclear how the dimensions of the blank in the claims can be interpreted relative to the unknown dimensions of a future blade. Applicant has amended claim 5 to set forth that the blade has a predetermined rhomboidal shape and a predetermined cross-section. Therefore the dimensions of the future blade to be made from the blank in claim 5 is now not unknown, but has been predetermined. Applicant notes that shapes and cross-sections of blades are almost always predetermined before the actual blade is formed from a blank.

The rejection also states that it is not clear how the "oversize" dimension of a blank can be determined since these dimensions can vary depending on the amount of material one is willing to remove from the blank. Applicant notes that claim 5 sets forth "a minimum oversize for machining". Therefore the "oversize" does not depend on the amount of material one is willing to remove, but instead on the minimum amount that needs to be removed in order to

form the blade from the blank by machining. It is common in machining processes, that an oversize is needed in order to accurately and precisely form the blade. In particular, the oversize is usually used to accurately align the machine tool with the blank. The machine tool often needs to touch the blank and actually machine away some material in order to note exactly where the machine tool is with respect to the blank. The amount of oversize, depends on the machine used to work the blank, and occasionally on the skill of the operator operating the machine. A minimum oversize for machining is a known quantity for a machining process, and a machining process will have a minimum oversize that is required in order for the machining process to operate properly. Therefore a person of ordinary skill in the art of machining would know the minimum oversize. This known minimum oversize for the particular machine in combination with the predetermined cross-section of the rhomboidal blade, provides sufficient information to determine the dimensions of the blank.

Claims 5 - 7 have been rejected as being anticipated by Derwent Abstract for SU 617144A. The rejection acknowledges Applicant's process language reciting hot forming steps. Applicant has reviewed SU, and finds no teaching nor suggestion of a blank manufactured by hot forming. The rejection states that when there is a substantially similar product, as in the applied prior art, the burden of proof is shifted to Applicant to establish that there product is patentably distinct. Applicant asserts that a blank formed by hot forming is a materially different structure than a blank formed by other methods or process steps.

The characteristics of a material, especially metal, depend greatly on how the material is formed. In forming metal objects, it is possible for the metal to be cast, forged, cold formed

or hot formed. Further, metals can be tempered by heating and then varying the rate of cooling. Metal objects can also be initially formed from a large blank and then machined to remove excess material.

The process by which a metal object is formed, determines such characteristics as the hardness, the strength, the flexibility or brittleness, the direction of the grain, the presence of hidden flaws, and surface finish. The way in which a metal is cooled, determines its temper. Metals that are cooled very quickly, as in quenching, become very hard and very brittle. Metal objects that are initially oversized, and then machined, can have their grain structure aligned in any specific direction.

In the present invention, the use of a hot formed blank, especially in combination with the machining of this hot formed blank, provides for a blade which is very well suited for axial turbine engines. The SU reference does not describe how a blank is formed, but only describes the process applied after the blank is formed. This process is not a machining process. Therefore the SU reference cannot lead a person to a blank which is created by hot forming, and is especially beneficial when machined to form a blade in an axial turbine.

A hot formed blank is a different structure and has different characteristics, then a blank formed from other processes, such as cold extrusion or casting. Since the SU reference does not specifically teach the structure of a blank formed by hot forming, the SU reference cannot anticipate all the features of claim 5.

If the Examiner desires, Applicant can provide an Affidavit attesting to blanks created by hot forming having different characteristics, and therefore being different structure, then

blanks formed by other methods. Applicant notes that Applicant's representative has previously successfully appealed a similar distinction before the Board of Appeals. The Examiner is invited to contact Applicant's representative by telephone if additional information is desired.

Claims 5 - 7 have been rejected as being anticipated by David.

The rejection states that David discloses the use of parallelogram-shaped cross-sections and that rhomboidal shapes are covered by parallelograms and therefore are anticipated by the teachings of David. Applicant notes that a rhomboidal shape is a species within parallelogram-shaped cross-sections. The teaching of a generic term, or genus, does not necessarily teach a species within that genus. The rejection only states that rhomboids are taught within sufficient specificity by David since they are parallelograms. The rejection is stating nothing more than that rhomboids are within the genus of parallelograms. The mere fact that a species is within a genus, is not sufficient specificity for a species to be anticipated by a genus. Therefore the teaching of a parallelogram does not anticipate a rhomboid or rhombus. David therefore fails to anticipate all the features of claim 5, and claim 5 defines over David.

As described previously, claim 5 also teaches that the material of the blank is created by hot forming. Applicant finds no teaching nor suggestion in David of a blank material created by hot forming. As Applicant has described previously, the hot forming of a blank material causes a specific structure which has characteristics that are different from materials formed by different process steps. Since David does not teach the specific structure of the blanks of claim 5, claim 5 therefore further defines over David.

Claims 5 - 7 have been rejected as being obvious over David in view of Applicant's

admitted prior art.

Applicant notes that both David, and the admitted prior art, page 3 lines 1 - 5, indicate that a wide flat steel, or a large ingot is cut or sawn to provide the desired blank. This is different from the step of hot forming the blank set forth in claim 5. If David is combined with the prior art, a person of ordinary skill in the art would be further led away from creating a blank by hot forming. Therefore the combination of David and the admitted prior art cannot cause claim 5 to be obvious, and actually leads a person away from claim 5.

Claims 5 - 7 have been rejected as being anticipated by Sejournet. Applicant notes that Sejournet also does not teach a blank with a rhomboidal shape. The rejection uses the same supporting statements as in David, for the parallelogram shaped cross-sections of Sejournet to anticipate a rhomboidal shape. Applicant reiterates, that the mere fact that a rhomboidal is a species of a parallelogram genus, is not sufficient for a genus to anticipate a species.

Furthermore, Sejournet does not describe a blank created by hot forming, and therefore Sejournet cannot teach the actual structure and characteristics of the blank of claim 5. Claim 5 therefore also defines over Sejournet.

Applicant has also added new device claims to depend from claim 5. These device claims add further details with regard to how the material of the blank is formed, and therefore further describe the structure of the blank. Applicant finds no teaching nor suggestion of these features in the prior art, and therefore these new device claims further define over the prior art.

With this Amendment Applicant is submitting new process claims, which use all of the features of the original device claim. These process claims are therefore a further limitation of

the original device claim. In particular these new process claims not only have the features of the original device claim, but also the features of the original process claim. Applicant notes that the original process claim had the steps of creating the blank. The new process claims now further have the limitation of the actual machining to transform the blank into the desired blade These present new claims are therefore more limiting than the original device claims. These claims therefore further define over the prior art.

If the Examiner has any comments or suggestions which would further favorable prosecution of this application, the Examiner is invited to contact Applicant's representative by telephone to discuss possible changes.

At this time Applicant respectfully requests reconsideration of this application, and based on the above amendments and remarks, respectfully solicits allowance of this application.

Respectfully submitted
for Applicant,

By: _____

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TD:tf
70208.10
Enclosed: Marked-Up Version of Claim 5

DATED: February 24, 2003
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SHOULD ANY OTHER FEE BE REQUIRED, THE PATENT AND TRADEMARK OFFICE IS HEREBY REQUESTED TO CHARGE SUCH FEE TO OUR DEPOSIT ACCOUNT 13-0410.

MARKED-UP VERSION OF CLAIM 5

5. (Amended) A blank for manufacturing a rhomboidal blade for axial turbo engines, the blade having a blade footing of predetermined rhomboidal shape and a blade body by machining to the finished size of the blade, the blank comprising:

a bar cut off from input stock bar-shaped manufactured by hot forming, the input stock having a cross section is adapted to ~~the~~a predetermined cross section of the rhomboidal blade footing and being larger on all sides than a maximum cross section of the blade by a minimum oversize for machining.